

IN THE CLAIMS

Pursuant to 37 C.F.R. § 1.121, a clean copy of the pending claims 13-35 and 37-38 is hereby provided for the Examiner's convenience.

13. A method for determining the presence or amount of an analyte in a test sample, comprising:

forming a mixture of (1) a chimeric enzyme comprising an enzyme and a mimetope, said mimetope including at least one amino acid, said chimeric enzyme having a sequence of said mimetope inserted in said enzyme or replacing at least one amino acid of said enzyme with the proviso that the activity of the chimeric enzyme is modulated upon binding of a binding molecule to the mimetope, (2) a test sample containing said analyte of interest, (3) a binding molecule which binds to a mimetope of the chimeric enzyme and modulates the activity of the enzyme, and (4) a substrate upon which the chimeric enzyme catalytically acts; and

detecting the amount of catalysis of the substrate and thereby determining the presence or absence of said analyte of interest.

14. A method of claim 13, wherein the analyte competes with the chimeric enzyme for binding to the binding molecule.

15. A method of claim 13, wherein the analyte is prostate-specific antigen.

16. A method of claim 13, wherein the test sample is serum.

17. A method of claim 13, wherein the test sample contains the analyte.

18. A method of claim 13, wherein the binding molecule is said analyte.

19. A method of claim 13, wherein the binding molecule is an antibody.

20. A method for determining the presence or amount of an analyte in a test sample, comprising:

forming a mixture of (1) a chimeric enzyme comprising an enzyme and a mimetope, said mimetope including at least one amino acid, wherein said chimeric enzyme having a sequence of said mimetope inserted in said enzyme or replacing at least one amino acid of enzyme with the proviso that the activity of the chimeric enzyme is modulated upon binding of a binding molecule to the mimetope, (2) test sample containing said analyte of interest, and (3) a substrate upon which the chimeric enzyme catalytically acts; and

detecting the amount of catalysis of the substrate and thereby determining the presence or absence of said analyte of interest.

21. A method of claim 20, wherein the analyte and substrate contact the enzyme simultaneously.

22. A method of claim 20, wherein the analyte is contacted with the chimeric enzyme prior to contacting with the test sample and the substrate.

23. A method of claim 20, wherein the analyte is an antibody.

24. A method of claim 20, wherein the starting enzyme is β -lactamase.

25. A method of claim 20, wherein the test sample contains the analyte.

26. The method of claim 13, wherein the mimetope comprises any one of a sequence identified from SEQ ID NOs. 1-78.

27. The method of claim 20, wherein the mimetope comprises any one of a sequence identified from SEQ ID NOs. 1-78.

28. The method of claim 13, wherein the enzymatic activity of the chimeric enzyme in the unbound state is equivalent to that of the starting enzyme.

29. The method of claim 13, wherein the enzymatic activity of the chimeric enzyme in the unbound state is equivalent to that of the starting enzyme.

30. (Amended) A method for determining the presence or amount of an analyte in a test sample, comprising:

forming a mixture of (1) a chimeric enzyme comprising β -lactamase and a binding site moiety, said binding site moiety including at least one amino acid, said chimeric enzyme having a sequence of said binding site moiety inserted in said enzyme or replacing at least one amino acid of said enzyme with the proviso that the activity of the chimeric enzyme is modulated upon binding of a binding molecule to the binding site moiety, (2) a test sample containing said analyte of interest, (3) a binding molecule which binds to a binding site moiety of the chimeric enzyme and modulates the activity of the enzyme, and (4) a substrate upon which the chimeric enzyme catalytically acts; and

detecting the amount of catalysis of the substrate and thereby determining the presence or absence of said analyte of interest.

31. A method of claim 30, wherein the analyte competes with the chimeric enzyme for binding to the binding molecule.

32. A method of claim 30, wherein the binding molecule is said analyte.

33. A method of claim 30, wherein the binding molecule is an antibody.

34. (Amended) A method for determining the presence or amount of an analyte in a test sample, comprising:

forming a mixture of (1) a chimeric enzyme comprising β -lactamase and a binding site moiety, said binding site moiety including at least one amino acid, wherein said chimeric enzyme having a sequence of said binding site moiety inserted in said enzyme or